

PHLEBOTOMUS (BRUMPTOMYIA) DIABOLICUS, A NEW SPECIES OF BITING GNAT FROM TEXAS (DIPTERA : PSYCHODIDAE).

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The genus *Phlebotomus* has been represented in the entomological literature of the United States by a single species, *vexator* Coquillett. This species occurs along the Potomac River in Maryland, and is not known to take the blood of man. It feeds upon amphibians and reptiles. Since most species of *Phlebotomus* attack man and other warm-blooded animals, cause annoyance, and are incriminated in the transmission of phlebotomus fever, the various species of the genus are of some general interest.

The species described in this paper, *Phlebotomus (Brumptomyia) diabolicus*, is the first species of this genus from the United States that is known to attack man. The description is based upon specimens reared or collected at Uvalde, Tex., by A. W. Lindquist, of the Bureau of Entomology and Plant Quarantine, who is studying the biology and habits of this species. In central southwest Texas it causes occasional annoyance to man.

This species may represent an undescribed subgenus of *Phlebotomus*, but until additional material of other related forms is at hand the systematic arrangement of Dyar (Amer. Jour. Hyg. 10 : 112-124, 1929) will be followed.

The species falls into the subgenus *Brumptomyia* França and Parrot, the male plainly exhibiting a tuft of spines near the base of the inside of the first joint of the upper claspers, the most important character used for the separation of the species of this subgenus from other species of *Phlebotomus*.

A key to the males of all species of *Phlebotomus* now known to occur in North and Central America is given, together with an illustration of the male terminalia of the species herein described.

KEY TO THE MALES OF THE GENUS PHLEBOTOMUS OCCURRING IN NORTH AND CENTRAL AMERICA.

1. Basal segment of upper appendages of terminalia with a tuft of setae or hair on inside toward base.....*Brumptomyia* França and Parrot 2
- Basal segment of upper appendages of terminalia without such a tuft.....3
2. Terminal segment of upper appendages with one apical spine (Texas)*diabolicus*, n. sp.
- Terminal segment with two apical spines (Maryland and Louisiana)....
vexator Coquillett

3. Middle Appendages armed with strong spines (Panama).....
Shannonomyia Dyar *panamensis* Shannon
 Middle appendages unarmed.....*Neophlebotomus* França and Parrott 4
4. Terminal segment of upper appendages with five spines (Guatemala
 and Panama).....*cruciatus* Coquillett
 Terminal segment with four spines (Panama)*shannoni* Dyar

***Phlebotomus (Brumptomyia) diabolicus*, n. sp.**

Specimens from Uvalde, Tex., were mounted in Canada balsam for microscopic study, and others were retained on card points for the gross description.

Male.—Head long, black behind, with long, black, flattened scales; eyes black; clypeus prominent, rather dark brown with long, black flattened scales; proboscis elongate; palpi with 1, 4, 5, 3, 8 formula, first segment with a series of setae around middle, second, third, and fourth segments with well-defined scattered setae, fifth segment with shorter and weaker setae; antennae with first and second segments rotund, third segment four times the length of the second, slight and elongate, each succeeding segment slightly shorter, each segment with the usual number of setae.

Mesonotum with elongate, blackish-brown, flattened setae; pleurae lighter. Legs elongate, as usual in this genus. Wings bluntly lanceolate, about three and one-half times as long as wide, first branching of second vein slightly before ending of first vein; all veins yellowish, and each with long, tawny hairs.

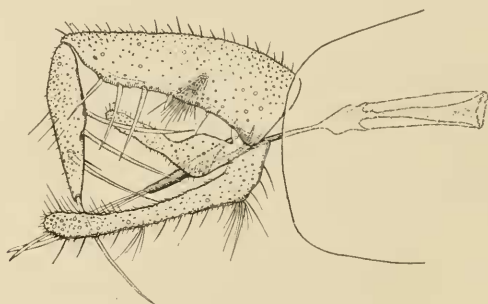


FIG. 2. Male terminalia of *Phlebotomus diabolicus*. x 150.

Hypopygium (fig. 1) with basal joint of upper claspers fully one and one-half times length of second joint, with scattered setae and with some hair; on inner side, medianly, with a well-defined tuft of setae or spines together with some long hair; below, with several longer well-defined setae; apical joint with three median and one apical setae, each approximately full length of segment; lower claspers about as long as basal joint of upper claspers, with rather abundant hair, near base with a tuft of hair below; penis filaments elongate, paired, each protruding beyond lower claspers. Length of male, 2 mm.

Female.—As in male except for normal sexual differences, a different palpal

formula (1, 4½, 5, 4, 6), and in second segment of palpi numerous setae not arranged in rows. Length of female, 2 mm.

Holotype.—Male No. 51411, in the U. S. National Museum, on a glass slide; collected November 14, 1934, at Uvalde, Tex., by A. W. Lindquist.

Allotype.—Female No. 51411, in the U. S. National Museum, on a glass slide; data as above.

Paratypes.—In the U. S. National Museum, on card points; from Uvalde, Tex.

The species may be collected from early in May until about the middle of November, according to Mr. Lindquist.

Two specimens of *Phlebotomus* were recently received by the Bureau of Entomology and Plant Quarantine, from the C C C Mosquito Survey. They were collected on May 25, 1935, at Ansley, La. Dr. Alan Stone, of the Division of Insect Identification, identified the specimens as *Phlebotomus vexator* Coq., a species previously known only from the type locality, Plummer's Island, Md.

NOTES ON THE HABITS AND BIOLOGY OF A SAND FLY, *PHLEBOTOMUS DIABOLICUS* HALL, IN SOUTHWESTERN TEXAS (DIPTERA : PSYCHODIDAE).

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Phlebotomus diabolicus Hall, 1936 (1) is not a major pest at Uvalde, Tex., but it frequently causes some annoyance to people in southwestern Texas. The present paper is a report on the only species of *Phlebotomus* known to attack man in the United States. Published records of the occurrence of a *Phlebotomus* at Plummers Island, Md., concern *P. vexator* Coq., which feeds upon amphibians and reptiles. Parman (2) has called attention to *Phlebotomus* sp. at Uvalde, Tex., and noted some of its habits. He found these biting flies in the more elevated parts of the city during September, October, and November.

Recently specimens were taken at Del Rio, Tex., 76 miles west of Uvalde on the Rio Grande, and it appears probable that the species is present at other points in the Rio Grande valley. During July, 1934, males and females were quite abundant at Texas Agricultural Substation No. 14 near Sonora, Texas (record by Mr. E. C. Cushing). The small size and quiet habits of *Phlebotomus* make it difficult to obtain specimens or reliable reports of its presence from householders. Many people report on small biting insects, but the layman easily confuses *Phlebotomus* with other small biting insects and with

¹ The writer is indebted to Miss Claudelle Lewis, Uvalde, Tex., and to Mr. and Mrs. H. G. Bossy, Del Rio, Tex., for obtaining engorged specimens of *Phlebotomus*, and to Mr. D. C. Parman for his helpful suggestions.